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EXAMINER

IWASHKO, LEV

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/757,957	Applicant(s) TAKATA ET AL.	
	Examiner Lev I. Iwashko	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/13/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/13/04, 7/19/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

Claim Rejections - 35 USC § 102

2. The following are quotations of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-5, 7-15, and 17-20 are rejected under U.S.C. 102(e) as being anticipated by Witkowski (US PGPub 2004/0030766).

Claim 1. A method of controlling a storage device controlling apparatus which includes:

- a plurality of channel controllers (*Section 077, line 2 – Declares FC controllers*)

- having a circuit board (*Section 0069 – Lines 1-15 – State that the logic section for the I/O is printed on a circuit board*)
- on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device; (*Section 0076, lines 11-20 – State that the FC controller receives commands to read and write data via a network to a storage device*)
- and a disk controller (*Section 0090, lines 6-7 – Declares a disk drive controller*)
- executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, (*Section 0090, lines 1-13 – Explain how I/O data requests are handled by the disk controller*)
- and which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area, said method comprising the step of: (*Section 0139, lines 5-8 – State the following: “An optional network management system path may be added in order to facilitate configuration, monitoring, and control of the present invention”*)
- performing, by said disk controller, a replication management processing whereby data is also written into a second logical volume to store a copy of the data in the second logical volume, when said data is written into a first logical volume. (*Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in*

FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422")

Claim 2. A method of controlling a storage device controlling apparatus according to claim 1 further comprising the steps of: receiving, by each of at least one of said channel controllers, information specifying said to-be-copied data in files or directories as units, said information being sent from said information processing apparatus; and identifying, by each said at least

one channel controller, data of a file or directory specified by said information received and controlling such that the data is stored in said first logical volume. (Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command

packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422”)

Claim 3. A method of controlling a storage device controlling apparatus according to claim 1 further comprising the steps of:

- receiving, by each of at least one of said channel controllers, first information specifying said to-be-copied data in files or directories as units, said first information being sent from said information processing apparatus; identifying, by each said at least one channel controller, data of a file or directory specified by said first information received and controlling such that the data is stored in said first logical volume; receiving, by each said at least one channel controller, second information instructing to stop said replication management processing, said second information being sent from said information processing apparatus; notifying, by each said at least one channel controller, said disk controller of an effect when said second information is received; stopping by said disk controller, when receiving said notifying, said replication management process; and starting to write into a plurality of first logical volumes after said replication management processing stops if writing into said storage device data of a file or directory specified by said first information causes writing into the plurality of first logical volumes, when said second information is received. *(Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the*

packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422”)

Claim 4. A method of controlling a storage device controlling apparatus according to claim 1, wherein the channel controllers include at least one enabled to communicate with the information processing apparatus through a LAN (Section 3, lines 1-14 – State that communication may be done through a LAN)

- and at least one enabled to communicate with the information processing apparatus through a Fibre Channel. (Section 0076 – Declares a Fibre Channel used for communication)

Art Unit: 2186

- Claim 5. A method of controlling a storage device controlling apparatus according to claim 4, wherein each of the channel controllers enabled to communicate with the information processing apparatus through a LAN is provided with its individual network address. *(Section 0152, lines 7-47 – Declare that all apparatuses on the network have addresses)*
- Claim 7. A method of controlling a storage device controlling apparatus which includes:
- a plurality of channel controllers *(Section 077, line 2 – Declares FC controllers)*
 - having a circuit board *(Section 0069 – Lines 1-15 – State that the logic section for the I/O is printed on a circuit board)*
 - on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device; *(Section 0076, lines 11-20 – State that the FC controller receives commands to read and write data via a network to a storage device)*
 - and a disk controller *(Section 0090, lines 6-7 – Declares a disk drive controller)*
 - executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, *(Section 0090, lines 1-13 – Explain how I/O data requests are handled by the disk controller)*
 - and which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area, said method comprising the step of: *(Section 0139, lines 5-8 – State the following: “An optional network management system path may be added in order to facilitate configuration, monitoring, and control of the present invention”)*

- performing, by said disk controller, a processing whereby data is sent to another storage device controlling apparatus to store a copy of the data also in a second logical volume provided by said another storage device controlling apparatus, when said data is written into a first logical volume. *(Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats*

one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422”)

- Claim 8. A method of controlling a storage device controlling apparatus according to claim 7 further comprising the steps of: receiving, by each of at least one of said channel controllers, information specifying said to-be-copied data in files or directories as units, said information being sent from said information processing apparatus; and identifying, by each said at least one channel controller, data of a file or directory specified by said first information received and controlling such that the data is stored in said first logical volume. *(Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines is the data has been previously fetched from the storage devices is remains cached in memory*

or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422")

Claim 9. A method of controlling a storage device controlling apparatus according to claim 7, wherein the channel controllers include at least one enabled to communicate with the information processing apparatus through a LAN (*Section 3, lines 1-14 – State that communication may be done through a LAN*)

- and at least one enabled to communicate with the information processing apparatus through a Fibre Channel. (*Section 0076 – Declares a Fibre Channel used for communication*)

Claim 10. A method of controlling a storage device controlling apparatus according to claim 9, wherein each of the channel controllers enabled to communicate with the information processing apparatus through a LAN is provided with its individual network address. (*Section 0152, lines 7-47 – Declare that all apparatuses on the network have addresses*)

Claim 11. A storage device controlling apparatus which includes:

- a plurality of channel controllers (*Section 077, line 2 – Declares FC controllers*)
- having a circuit board (*Section 0069 – Lines 1-15 – State that the logic section for the I/O is printed on a circuit board*)

- on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device; *(Section 0076, lines 11-20 – State that the FC controller receives commands to read and write data via a network to a storage device)*
- and a disk controller *(Section 0090, lines 6-7 – Declares a disk drive controller)*
- executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, *(Section 0090, lines 1-13 – Explain how I/O data requests are handled by the disk controller)*
- and which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area, *(Section 0139, lines 5-8 – State the following: “An optional network management system path may be added in order to facilitate configuration, monitoring, and control of the present invention”)*
- said controlling apparatus wherein said disk controller comprises a section which performs a replication management processing whereby data is also written into a second logical volume to store a copy of the data in the second logical volume, when said data is written into a first logical volume. *(Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the*

command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422")

- Claim 12. A storage device controlling apparatus according to claim 11, wherein each of at least one of said channel controllers comprises a section which receives information specifying said to-be-copied data in files or directories as units, said information being sent from said information processing apparatus; and wherein each said at least one channel controller further comprises a section which receives said information, identifies data of a file or directory specified by said information, and controls such that

the data is stored in said first logical volume. (Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422”)

Claim 13. A storage device controlling apparatus according to claim 11, wherein each of at least one of said channel controllers comprises a section which receives first information specifying said to-be-copied data in files or directories as units, said first information being sent from said information processing apparatus; a section which identifies data of a file or directory specified by said first information received and controls such that the data is stored in said first logical volume; a section which receives second information instructing to stop said replication management processing, said second information being sent from said information processing apparatus; and a section which notifies said disk controller of an effect when said second information is received; wherein said disk controller further comprises a section which stops said replication management processing when said notice is received; and wherein each said at least one channel controller further comprises a section which starts to write into a plurality of first logical volumes after said replication management processing stops if writing into said storage device data of a file or directory specified by said first information causes writing into the plurality of first logical volumes, when said second information is received. *(Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target*

device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422")

Claim 14. A storage device controlling apparatus according to claim 11, wherein the channel controllers include at least one enabled to communicate with the information processing apparatus through a LAN (*Section 3, lines 1-14 – State that communication may be done through a LAN*)

- and at least one enabled to communicate with the information processing apparatus through a Fibre Channel. (*Section 0076 – Declares a Fibre Channel used for communication*)

Claim 15. A method of controlling a storage device controlling apparatus according to claim 14, wherein each of the channel controllers enabled to communicate with the information processing apparatus through a LAN is provided with its individual network address. (*Section 0152, lines 7-47 – Declare that all apparatuses on the network have addresses*)

Claim 17. A storage device controlling apparatus which includes:

Art Unit: 2186

- a plurality of channel controllers (*Section 077, line 2 – Declares FC controllers*)
- having a circuit board (*Section 0069 – Lines 1-15 – State that the logic section for the I/O is printed on a circuit board*)
- on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device; (*Section 0076, lines 11-20 – State that the FC controller receives commands to read and write data via a network to a storage device*)
- and a disk controller (*Section 0090, lines 6-7 – Declares a disk drive controller*)
- executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, (*Section 0090, lines 1-13 – Explain how I/O data requests are handled by the disk controller*)
- and which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area, (*Section 0139, lines 5-8 – State the following: “An optional network management system path may be added in order to facilitate configuration, monitoring, and control of the present invention”*)
- said controlling apparatus wherein said disk controller comprises a section which performs a processing whereby data is sent to another storage device controlling apparatus to store a copy of the data also in a second logical volume provided by said another storage device controlling apparatus, when said data is written into a first logical volume. (*Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402,*

which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422")

Claim 18. A storage device controlling apparatus according to claim 17 wherein each of at least one of said channel controllers comprises a section which

receives information specifying said to-be-copied data in files or directories as units, said information being sent from said information processing apparatus; and a section which identifies data of a file or directory specified by said information received and controls such that the data is stored in said first logical volume. (Section 0169, lines 1-35 – State the following: “The application command processing method is illustrated in FIG. 24. The application command processing path begins generally at step 2402, which occurs after the AP 1716 has received a signal indicating that a packet has arrived for high-level application processing. This is the same packet sent in step 2024 in FIG. 20. Thereafter, in step 2404, the AP 1716 processes the received command packet and validates the fields within the packet. In step 2406, the AP 1716 extracts the command type and command parameters from the packet fields. In step 2408, the AP 1716 maps the requested command to a set of new commands that it must issue to one or more storage target devices 1610. Also in step 2408, the AP 1716 remaps or translates the other parameters for the command like the storage target device address, logical block number, logical unit numbers, etc. The result of step 2408 is that the AP 1716 creates one or more new commands that will achieve the desired results of the original received command. Thereafter, in step 2410, the AP 1716 discerns whether the command is a request for data and determines if the data has been previously fetched from the storage devices or remains cached in memory or local storage. If the result of step 2410 is true, then the AP 1716 executes step 2418 where one or more response packets are formatted with the requested data included and in step 2420 sends the packet(s) to the source address of the original command packet (e.g., the host 1602) received by the application blade 1616 and then frees the memory utilized by the command packet and terminates at step 2422. If the result of step 2410 is negative, then in step 2412, the AP 1716 formats one or more new command packets to be sent in step 2414 to one or more

Art Unit: 2186

storage targets 1610. In step 2416, the AP 1716 saves the number of new command packets generated, queues the original command packet received on a waiting queue, and generally terminates processing at step 2422")

Claim 19. A storage device controlling apparatus according to claim 17, wherein the channel controllers include at least one enabled to communicate with the information processing apparatus through a LAN (*Section 3, lines 1-14 – State that communication may be done through a LAN*)

- and at least one enabled to communicate with the information processing apparatus through a Fibre Channel. (*Section 0076 – Declares a Fibre Channel used for communication*)

Claim 20. A method of controlling a storage device controlling apparatus according to claim 19, wherein each of the channel controllers enabled to communicate with the information processing apparatus through a LAN is provided with its individual network address. (*Section 0152, lines 7-47 – Declare that all apparatuses on the network have addresses*)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 16 are rejected under 35 U.S.C.103(a) as being unpatentable over

Witkowski as applied to claims 1, 4, 11 and 14 above, further in view of Thompson et al. (US PG Pub 2003/0229522).

Witkowski teaches the limitations of claims 1, 4, 11 and 14 for the reasons above.

Art Unit: 2186

Witkowski's invention differs from the claimed invention in that there is no specific reference to NAS writing to web pages.

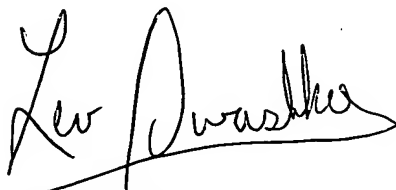
Witkowski fails to teach claims 6 and 11, which state: "A method of controlling a storage device controlling apparatus according to claim 4 (or 14), wherein each of the channel controllers enabled to communicate with the information processing apparatus through a LAN includes a NAS manager providing a setting Web page for setting the replication managing function." However, Thompson 's invention discloses the following: "The data tier 906 is the layer where application data is saved for users, typically in a relational database architecture (e.g., a relational database architecture including a relational database management system (RDBMS) 907 and data storage 909, such as network attached storage (NAS) and/or a storage area network (SAN))" (Section 0271, lines 19-25). Thompson further states that "Once this data is gathered by the business objects 1050 (as shown in FIG. 9), the presentation layer objects 1040 render and return an HTML page specific to that user for that role for that satellite site. In this way, a single set of deployed Java objects on the web application server 905, combined with a single rdbms server 907 and file system located on a network attached storage or storage area network 909 can generate HTML pages representing an unlimited number of sites from a single infrastructure deployment" (Section 0292, lines 17-25). It would have been obvious to one of ordinary skill in the art, having the teachings of the "Method and Apparatus for Switch Control Configuration" of Witkowski and Thompson 's "Benefit Management System and Method" before him at the time the invention was made, to combine the two inventions so that there would be a NAS manager that could write to Web Pages so that the entire system would be more user-friendly and more efficient.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lev I. Iwashko whose telephone number is (571)272-1658. The examiner can normally be reached on M-F (alternating Fridays), from 8-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lev Iwashko



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PRIMARY EXAMINER